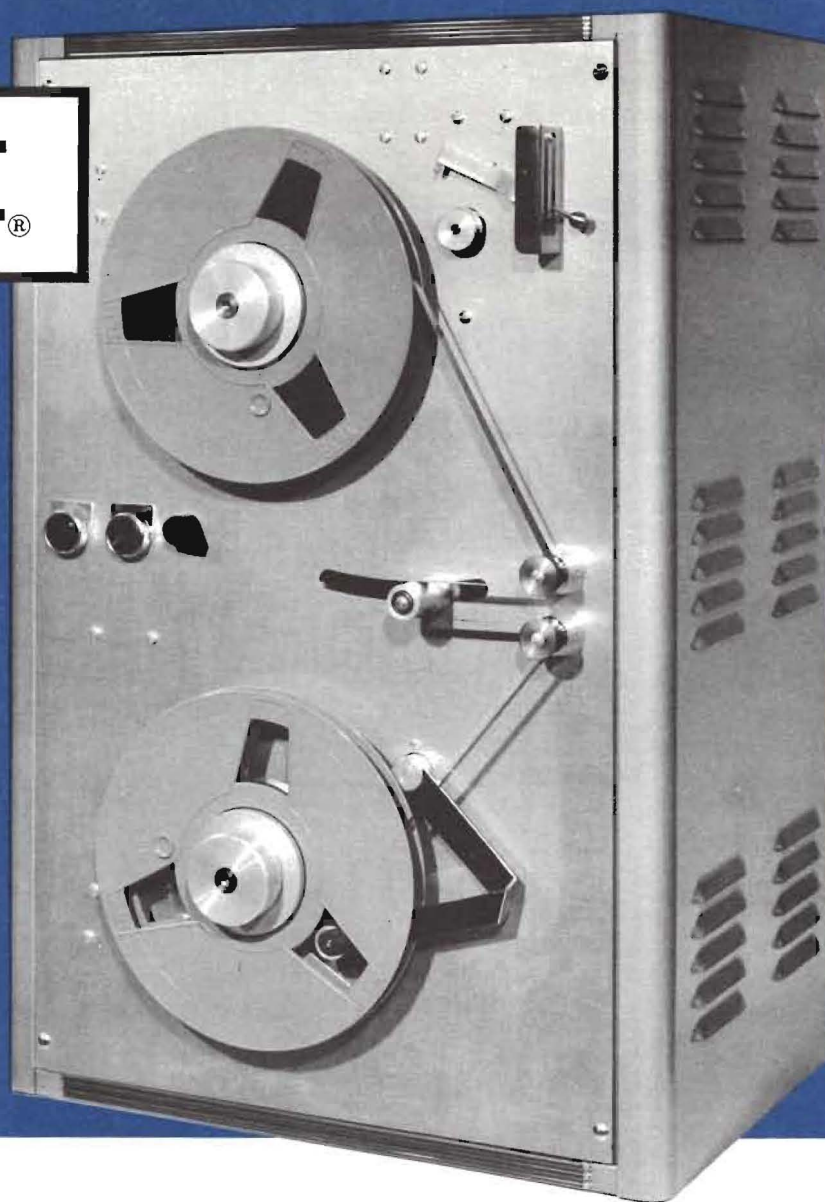


# GKI<sup>®</sup>



## THE MODEL WT-183 PROGRAMMED TENSION TAPE WINDER

*A NEW CONCEPT IN MAGNETIC TAPE PRESERVATION . . . overcomes a fundamental cause of tape roll rupture—non-uniform mechanical relaxation following presently common tape winding practices.*

*GKI Manufactures A  
Complete Line of Tape Testing  
And Cleaning Equipment*

### GENERAL KINETICS INCORPORATED

2611 SHIRLINGTON ROAD  
ARLINGTON 6, VIRGINIA  
JACKSON 5-4055

*Specialists in Magnetic Recording  
Research*

#### THE WT-183 TAPE WINDER:

- IMPROVES PERFORMANCE OF MAGNETIC TAPE.
- PRODUCES SMOOTH, COMPACT, STABLE ROLLS BY OFF-LINE WINDING.
- OFFERS WINDING TENSION CONTROL PATTERNS DESIGNED TO SUIT EACH PARTICULAR COMBINATION OF TAPE MATERIAL AND REEL TYPE.
- ELIMINATES FOLDS AND ABRASIONS CAUSED BY LOOSE RELAXATION OF TAPE.
- REDUCES DEVELOPMENT OF TAPE SKEW.
- REDUCES TAPE STORAGE AND SHIPMENT PROBLEMS.
- MINIMIZES EFFECTS OF HUMIDITY AND TEMPERATURE CHANGES.
- HANDLES TAPE WIDTHS UP TO 1".

*# 940<sup>00</sup>  
unmount.*





## THE MODEL WT-183 PROGRAMMED TENSION TAPE WINDER

**WHY IT IS NEEDED.** General Kinetics Incorporated has performed extensive research into the causes of magnetic tape failure. Mathematical analyses have been made of the static physics affecting the winding and storage of thin strip materials on reels. These analyses showed that when tapes are wound on reels of standard type, according to the common constant tension or constant torque winding patterns, the elastic storage of energy in the tape roll slowly dissipates by plastic flow in a non-uniform fashion. The result? The tape roll eventually comes apart at a predictable point.

Ordinary winding methods cause the inner portions of the roll to be stored under extreme inward pressures and with negative tension in each lamina of tape. In contrast, the outer portions of the roll enter storage with much lower inward pressures and with positive tension in each lamina. At a point  $\frac{1}{4}$  to  $\frac{1}{3}$  of the distance from the hub to the outside diameter of the roll, the stored tension undergoes a negative-to-positive transition. It is here that plastic flow of the inner and outer portions occurs in opposing directions, resulting in breakup of the roll.

When tape rolls break at the stored tension transition region, additional problems occur when they are put into service. Even under the best conditions, these rolls can cinch and produce folds and abrasions due to inertial reaction of the loosened outer portion. Such action, of course, will produce dropouts. In addition, axial slippage of a tape roll, which often occurs spontaneously as the pile is disrupted, produces a skewed length of tape, and attendant time displacement errors.

**HOW THE WT-183 WORKS.** GKI's Programmed Tension Winder consists of a tape transport which winds magnetic tapes on standard reels according to a theoretically-derived and experimentally-proven pattern of tape holdback tension. This tension pattern prevents the creation of a tension transition region and thereby eliminates this important cause of tape failure.

During the winding process, the diameter of the wound roll is measured continuously by a balanced follower arm resting lightly on the tape roll edge. The instantaneous position of the arm is transmitted mechanically to a cam system which continuously varies the winding tension according to the calculated program. Tape rolls, as they come from the winder, are smooth, compact and stable and will remain so for extended periods, even under wide variations of temperature and humidity.

### PRICES

*upon request. Quantity discounts for multiple installations are available. Delivery can be scheduled 60 days from receipt of order.*

PLEASE ADDRESS ALL INQUIRIES AND ORDERS TO:

**GENERAL KINETICS INCORPORATED,**  
2611 Shirlington Road, Arlington 6, Virginia

### SPECIFICATIONS:

**DIMENSIONS, OVERALL** / 41" high x 21" deep x 22" wide

**WEIGHT** / 130 lbs.

**POWER REQUIREMENT** / 115 volts, 60 cycles, single phase

**TENSION CONTROL** /  $\pm 5\%$

**REELS** / To suit specific applications

**TAPE WIDTHS** / Up to 1"

**CONTROL CAMS** / Tension control cams available for any standard tape material and reel design

**WINDING SPEED** / Winding speeds up to 1200 ft./min. are available

*Specifications are subject to change without notice.*

**GKI®**